

REMARKS

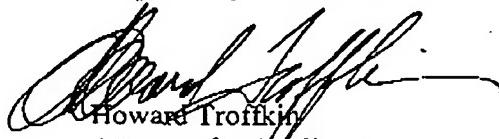
Attorney for Applicants thanks the Examiner for the courtesies extended to him during a telephonic interview, which took place on August 15, 2005 with respect to the subject application. The present Amendment reflects the discussions and conclusions reached during the course of the conference to place the present application in condition for allowance with respect to the claimed invention, as originally filed.

The present application was made subject to a restriction requirement by an Office Action dated May 14, 2004. During telephonic interview with the Examiner, it was agreed that the subject matter of Claims 1 to 5 directed to film products would be made subject to prosecution in the instant application. It was further agreed that, on the finding of allowance of said claims, original Claims 6 to 14 directed to laminate products would be reconsidered for allowance within the present application. In view of the Restriction, Claims 6 to 24 were withdrawn to further prosecution.

A Notice of Allowance has issued with respect to the invention of Claims 1-5 of the present application. Examiner and Attorney for Applicants have agreed that original Claims 6 to 14 directed to laminate products should also be allowed and made part of the present application. The Examiner has made the allowance of said claims conditional upon amending Claims 6 to 14 to conform to any prior amendments of the allowed claims. Attorney for Applicants presents new Claims 25 to 33 to correspond to original Claims 6 to 14 and to conform to the condition set forth by the Examiner.

Attorney for Applicants believes the Examiner will agree that the present Amendment should be entered and that Claims 1 to 5 and 25 to 33, as presently submitted, be made subject to the Notice of Allowance issued on July 21, 2005. Such action is respectfully solicited.

Respectfully submitted,



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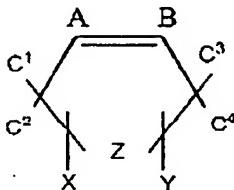
Appendix I  
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1. (Previously Presented): A film comprising at least one layer, the layer comprising an oxygen scavenger composition comprising a condensation polymer and an oxygen scavenging catalytic amount of a transition metal salt, compound or complex, wherein said polymer comprises mer units derived from:

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(A) at least one or a mixture of substituted alicyclic compounds having non-aromatic, ethylenic functionality according to the following representation:

10



wherein

A, B, C<sup>1</sup>, C<sup>2</sup>, C<sup>3</sup>, C<sup>4</sup> each independently represents hydrogen or a C<sub>q</sub>H<sub>2q+1</sub> hydrocarbyl group with q being an integer of from 0 to 20, provided that either A or B and at least one of C<sup>1</sup>, C<sup>2</sup>, C<sup>3</sup>, C<sup>4</sup> are hydrogen atoms and each carbon atom of the alicyclic ring is fully substituted by hydrogen, hydrocarbyl, X and/or Y group(s) or mixtures thereof to fill its valence state;

15

X and Y each independently represents -(CH<sub>2</sub>)<sub>n</sub>-C=O)-D with n being an integer in the range from 0 to 20 and D being selected from a halide atom or an OR group wherein R is hydrogen atom or a C<sub>1</sub>-C<sub>12</sub> alkyl group, or X and Y together represent -(CH<sub>2</sub>)<sub>n</sub>-C=O)<sub>x</sub>-D with x being 2, n being an integer in the range from 0 to 20 and D is oxygen atom; and

20

Z representing a -(C<sub>t</sub>H<sub>2t</sub>)- hydrocarbylene group with t being an integer in the range from 1-4;

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(B) at least one or a mixture of difunctional hydrocarbon compounds according to the following representation:

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**G-R'-G**

wherein

R' represents a C<sub>5</sub> or greater hydrocarbon group selected from alkylene, cycloalkylene or arylene group, and  
5 each G represents a hydroxyl or an amino group;

(C) from 300 to 15,000 parts per million based on the total of (A), (B),  
(C) and (D) of at least one or a mixture of polyfunctional hydrocarbon  
compounds according to the following representation:

10

**J-R''(-J)<sub>z</sub>**

wherein

R'' represents a C<sub>2</sub>-C<sub>20</sub> hydrocarbon group selected from alkylene, cycloalkylene, arylene, alkarylene or aralkylene groups or mixtures thereof;

15

J represents a functional group selected from -OH, -NH<sub>2</sub>, -N=C=O and -(CH<sub>2</sub>)<sub>n</sub>-C=O)-D with n being an integer in the range from 0 to 20 and D being selected from a halide atom or an OR''' group, wherein R''' is an -H, or C<sub>1</sub>-C<sub>12</sub> alkyl group, or two J groups together represents

20

(CH<sub>2</sub>)<sub>n</sub> C-O-X-D with n being an integer of from 0 to 20, D being an oxygen atom and x being 2;

z is an integer of from 2 to 5; and

25

(D) from 1 to 20 mole percent of the total of (A), (B), (C) and (D) of at least one or a mixture of monomer compounds selected from isophthalic acid, terephthalic acid, tetrahydroisophthalic acid, tetrahydrotetraphthalic acid, hydrogenated isophthalic acid, hydrogenated terephthalic acid, C<sub>1</sub>-C<sub>12</sub> alkyl esters thereof, anhydride derivatives thereof, and hydrocarbyl derivatives thereof and lower C<sub>1</sub>-C<sub>5</sub> glycol ester derivatives thereof; said X and Y of (A), G of (B), J of (C) and functional groups of (D) are in amounts

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that provide a molar ratio of carboxylic acid, acid ester acid halide and isocyano groups to hydroxyl and amino groups of from 0.9:1 to 1.1:1.

2. (Original): The film of claim 1 wherein monomer (A) is selected from  
5                   *cis*-1,2,3,6-tetrahydronaphthalic anhydride; and dimethyl-1,2,3,6-tetrahydronaphthalate.

10                  3. (Original): The film of claim 1 wherein monomer (B) is selected from 1,5-pentanediol, 1,6-hexanediol, 1,7-heptanediol, 1,8-octanediol and mixtures thereof.

15                  4. (Original): The film of claim 1 wherein the monomer (C) is selected from benzenepentacarboxylic acid, benzenehexacarboxylic acid, trimellitic anhydride, pyromellitic dianhydride, trimethylolpropane, pentaerythritol and mixtures thereof.

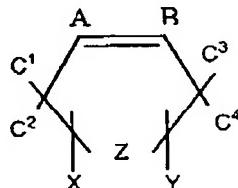
20                  5. (Original): The film of claim 1 wherein monomer (D) is selected from isophthalic acid, terephthalic acid, isophthalic acid ( $C_1-C_3$ ) alkyl ester, terephthalic acid ( $C_1-C_3$ ) alkyl ester, bis(2-hydroxyethyl)terephthalate, bis(2-hydroxyethyl)isophthalate, hydrocarbyl substituted derivatives thereof and mixtures thereof.

25                  6. (Withdrawn): A laminated product comprising a plurality of layers, including  
i) at least one layer, the layer comprising an oxygen scavenger composition comprising a condensation polymer and a transition metal salt, compound or complex, wherein said polymer comprises mer units derived from

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- (A) at least one or a mixture of substituted alicyclic compounds having non-aromatic, ethylenic functionality according to the following representation:

5



wherinc

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A, B, C<sup>1</sup>, C<sup>2</sup>, C<sup>3</sup>, C<sup>4</sup> each independently represents hydrogen or a C<sub>q</sub>H<sub>2q+1</sub> hydrocarbyl group with q being an integer of from 0 to 20, provided that either A or B and at least one of C<sup>1</sup>, C<sup>2</sup>, C<sup>3</sup>, C<sup>4</sup> are hydrogen atoms and each carbon atom of the alicyclic ring is fully substituted by hydrogen, hydrocarbyl, X and/or Y group(s) or mixtures thereof to fill its valence state;

15

X and Y each independently represents -(CH<sub>2</sub>)<sub>n</sub>-C=O)-D with n being an integer in the range from 0 to 20 and D being selected from a halide atom or an OR group wherein R is hydrogen atom or a C<sub>1</sub>-C<sub>12</sub> alkyl group, or X and Y together represent -(CH<sub>2</sub>)<sub>n</sub>-C=O)<sub>x</sub>-D with x being 2, n being an integer in the range from 0 to 20 and D is oxygen atom; and

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Z representing a -(C<sub>t</sub>H<sub>2t-2</sub>)- hydrocarbylene group with t being an integer in the range from 1-4;

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- (B) at least one or a mixture of difunctional hydrocarbon compounds according to the following representation:



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R' represents a C<sub>5</sub> or greater hydrocarbon group selected from alkylene, cycloalkylene or arylene group, and each G represents a hydroxyl or an amino group;

5 (C) at least one or a mixture of polyfunctional hydrocarbon compounds according to the following representation:

J-R''(-J)<sub>z</sub>

wherein

10 R'' represents a C<sub>2</sub>-C<sub>20</sub> hydrocarbon group selected from alkylene, cycloalkylene, arylene, alkarylene or aralkylene groups or mixtures thereof;

15 J represents a functional group selected from -OH, -NH<sub>2</sub>, -N=C=O and -(CH<sub>2</sub>)<sub>n</sub>-C=O)-D with n being an integer in the range from 0 to 20 and D being selected from a halide atom or an OR''' group, wherein R''' is an -H, or C<sub>1</sub>-C<sub>12</sub> alkyl group, or two J groups together represents -(CH<sub>2</sub>)<sub>n</sub>-C=O)<sub>x</sub>-D with n being an integer of from 0 to 20, D being an oxygen atom and x being 2;

z is an integer of from 2 to 5; and

20 (D) at least one or a mixture of monomer compounds selected from isophthalic acid, terephthalic acid, tetrahydroisophthalic acid, tetrahydroterephthalic acid, hydrogenated isophthalic acid, hydrogenated terephthalic acid, C<sub>1</sub>-C<sub>12</sub> alkyl esters thereof, anhydride derivatives thereof, and hydrocarbyl derivatives thereof and lower C<sub>1</sub>-C<sub>5</sub> glycol ester derivatives thereof; and

25 ii) at least one layer comprising a material selected from the group consisting of  
a) a polymeric article,  
b) a paper article, and  
30 c) a metal article.

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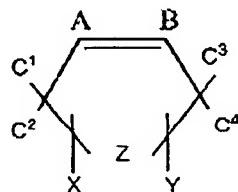
7. (Withdrawn): The laminated product of claim 6 wherein monomer (A) is selected from *cis*-1,2,3,6-tetrahydrophthalic anhydride; and dimethyl-1,2,3,6-tetrahydrophthalate.
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8. (Withdrawn): The laminated product of claim 6 wherein monomer (B) is selected from 1,5-pentanediol, 1,6-hexanediol, 1,7-heptanediol, 1,8-octanediol and mixtures thereof.
- 10 9. (Withdrawn): The laminated product of claim 6 wherein the monomer (C) is selected from benzenepentacarboxylic acid, benzenhexacarboxylic acid, trimellitic anhydride, pyromellitic dianhydride, trimethylolpropane, pentaerythritol and mixtures thereof.
- 15 10. (Withdrawn): The laminated product of claim 6 wherein monomer (D) is selected from isophthalic acid, terephthalic acid, isophthalic acid (C<sub>1</sub>-C<sub>3</sub>) alkyl ester, terephthalic acid (C<sub>1</sub>-C<sub>3</sub>) alkyl ester, bis(2-hydroxyethyl)terephthalate, bis(2-hydroxyethyl)isophthalate, hydrocarbyl substituted derivatives thereof and mixtures thereof.
- 20 11. (Withdrawn): The laminated product of claim 6 wherein the polymeric article comprises a bottle.
- 25 12. (Withdrawn): The laminated product of claim 6 wherein the polymeric article comprises a tray.
13. (Withdrawn): The laminated product of claim 6 wherein the paper article comprises a gable top carton.
- 30 14. (Withdrawn): The laminated product of claim 6 wherein the metal

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article comprises a can.

15. (Withdrawn): An oxygen scavenger composition comprising a condensation polymer and a transition metal salt, compound or complex, wherein said polymer comprises mer units derived from
- (A) at least one or a mixture of substituted alicyclic compounds having non-aromatic, ethylenic functionality according to the following representation:

10



wherein

- A, B, C<sup>1</sup>, C<sup>2</sup>, C<sup>3</sup>, C<sup>4</sup> each independently represents hydrogen or a C<sub>q</sub>H<sub>2q+1</sub> hydrocarbyl group with q being an integer of from 0 to 20, provided that either A or B and at least one of C<sup>1</sup>, C<sup>2</sup>, C<sup>3</sup>, C<sup>4</sup> are hydrogen atoms and each carbon atom of the alicyclic ring is fully substituted by hydrogen, hydrocarbyl, X and/or Y group(s) or mixtures thereof to fill its valence state;
- X and Y each independently represents -(CH<sub>2</sub>)<sub>n</sub>-C=O)-D with n being an integer in the range from 0 to 20 and D being selected from a halide atom or an OR group wherein R is hydrogen atom or a C<sub>1</sub>-C<sub>12</sub> alkyl group, or X and Y together represent -(CH<sub>2</sub>)<sub>n</sub>-C=O)<sub>x</sub>-D with x being 2, n being an integer in the range from 0 to 20 and D is oxygen atom; and
- Z representing a -(C<sub>t</sub>H<sub>2t-2</sub>)- hydrocarbylene group with t being an integer in the range from 1-4,

25

- (B) at least one or a mixture of difunctional hydrocarbon compounds according to the following representation:

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**G-R'-G**

wherein

R' represents a C<sub>5</sub> or greater hydrocarbon group selected from alkylcne, cycloalkylcne or arylene group, and  
5 each G represents a hydroxyl or an amino group;

(C) at least one or a mixture of polyfunctional hydrocarbon compounds according to the following representation:

10 **J-R''(-J)<sub>z</sub>**

wherein

R'' represents a C<sub>2</sub>-C<sub>20</sub> hydrocarbon group selected from alkylene, cycloalkylene, arylene, alkarylene or aralkylene groups or mixtures thereof;

15 J represents a functional group selected from -OH, -NH<sub>2</sub>, -N=C=O and -(CH<sub>2</sub>)<sub>n</sub>-C=O)-D with n being an integer in the range from 0 to 20 and D being selected from a halide atom or an OR''' group, wherein R''' is an -H, or C<sub>1</sub>-C<sub>12</sub> alkyl group, or two J groups together represents -(CH<sub>2</sub>)<sub>n</sub>-C=O)x-D with n being an integer of from 0 to 20, D being an oxygen atom and x being 2;

20 z is an integer of from 2 to 5; and

(D) at least one or a mixture of monomer compounds selected from isophthalic acid, terephthalic acid, tetrahydroisophthalic acid, 25 tetrahydroterephthalic acid, hydrogenated isophthalic acid, hydrogenated terephthalic acid, C<sub>1</sub>-C<sub>12</sub> alkyl esters thereof, anhydride derivatives thereof, and hydrocarbyl derivatives thereof and lower C<sub>1</sub>-C<sub>5</sub> glycol ester derivatives thereof.

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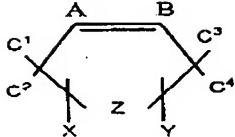
16. (Withdrawn): The composition of claim 15 wherein monomer (A) is selected from *cis*-1,2,3,6-tetrahydrophthalic anhydride; and dimethyl-1,2,3,6-tetrahydrophthalate.
- 5 17. (Withdrawn): The composition of claim 15 wherein monomer (B) is selected from 1,5-pentanediol, 1,6-hexanediol, 1,7-heptanediol, 1,8-octanediol and mixtures thereof.
- 10 18. (Withdrawn): The composition of claim 15 wherein the monomer (C) is selected from benzenepentacarboxylic acid, benzenehexacarboxylic acid, trimellitic anhydride, pyromellitic dianhydride, trimethylolpropane, pentaerythritol and mixtures thereof.
- 15 19. (Withdrawn): The composition of claim 15 wherein monomer (D) is selected from isophthalic acid, terephthalic acid, isophthalic acid (C<sub>1</sub>-C<sub>3</sub>) alkyl ester, terephthalic acid (C<sub>1</sub>-C<sub>3</sub>) alkyl ester, bis(2-hydroxyethyl)terephthalate, bis(2-hydroxyethyl)isophthalate, hydrocarbyl substituted derivatives thereof and mixtures thereof.
- 20 20. (Withdrawn): The composition of claim 15 wherein the transition metal is present in from 0.001 to 1 weight percent based on the total weight of the mixture.
- 25 21. (Withdrawn): The composition of claim 15 wherein the transition metal is present as a salt selected from the group consisting of cobalt neodecanoate, cobalt 2-ethylhexanoate, cobalt oleate, cobalt acetylacetone, and cobalt 2-ethylbutyrate.
- 30 22. (Withdrawn): The composition of Claim 15 wherein the composition comprises an effective amount of a photoinitiator.

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23. (Withdrawn): The composition of claim 15 wherein the oxygen scavenger composition comprises a diluent polymer selected from the group consisting of ethylene polymer and copolymer, polyester, polyvinyl chloride, polyvinylidene dichloride, polycaprolactone, polyamide, polycarbonate, polyurethane, polyether, polypropylene, polystyrene, and copolymers and mixtures thereof.
- 5
24. (Withdrawn): The composition of claim 15 wherein
- 10           a) the condensation polymer is derived from monomer (C) in the amount of from 300 to 15,000 parts per million based on the total monomer content used,
- 15           b) the condensation polymer is derived from monomer (D) in the amount of from 2 to 25 molar percent of the total of monomers (A) and (D), and
- 15           c) the molar ratio of carboxylic acid, acid ester, acid halide and isocyanate groups to hydroxyl and amine groups of monomers (A), (B), (C) and (D) is from 0.9 to 1.1.
- 20           25. (New): A laminated product comprising a plurality of layers, including
- 25           i) at least one layer, the layer comprising an oxygen scavenger composition comprising a condensation polymer and an oxygen scavenging catalytic amount of a transition metal salt, compound or complex, wherein said polymer comprises mer units derived from
- 25           (A) at least one or a mixture of substituted alicyclic compounds having non-aromatic, ethylenic functionality according to the following representation:
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wherein

- 5           A, B, C<sup>1</sup>, C<sup>2</sup>, C<sup>3</sup>, C<sup>4</sup> each independently represents hydrogen or a C<sub>q</sub>H<sub>2q+1</sub> hydrocarbyl group with q being an integer of from 0 to 20, provided that either A or B and at least one of C<sup>1</sup>, C<sup>2</sup>, C<sup>3</sup>, C<sup>4</sup> are hydrogen atoms and each carbon atom of the alicyclic ring is fully substituted by hydrogen, hydrocarbyl, X and/or Y group(s) or mixtures thereof to fill its valence state;
- 10           X and Y each independently represents -(CH<sub>2</sub>)<sub>n</sub>-C(=O)-D with n being an integer in the range from 0 to 20 and D being selected from a halide atom or an OR group wherein R is hydrogen atom or a C<sub>1</sub>-C<sub>12</sub> alkyl group, or X and Y together represent -(CH<sub>2</sub>)<sub>x</sub>-C(=O)<sub>y</sub>-D with x being 2, n being an integer in the range from 0 to 20 and D is oxygen atom; and
- 15           Z representing a -(C<sub>t</sub>H<sub>2t</sub>)- hydrocarbylene group with t being an integer in the range from 1-4;
- 20           (B) at least one or a mixture of difunctional hydrocarbon compounds according to the following representation:

**G-R'-C**

wherein

- 25           R' represents a C<sub>5</sub> or greater hydrocarbon group selected from alkylene, cycloalkylene or arylene group, and each G represents a hydroxyl or an amino group;

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- ii) at least one layer comprising a material selected from the group consisting of
- a) a polymeric article,
  - b) a paper article, and
  - c) a metal article.

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26. (New): The laminated product of claim 6 wherein monomer (A) is selected from *cis*-1,2,3,6-tetrahydrophthalic anhydride; and dimethyl-1,2,3,6-tetrahydrophthalate.

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27. (New): The laminated product of claim 6 wherein monomer (B) is selected from 1,5-pentanediol, 1,6-hexanediol, 1,7-heptanediol, 1,8-octanediol and mixtures thereof.

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28. (New): The laminated product of claim 6 wherein the monomer (C) is selected from benzenepentacarboxylic acid, benzenehexacarboxylic acid, trimellitic anhydride, pyromellitic dianhydride, trimethylolpropane, pentaerythritol and mixtures thereof.

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29. (New): The laminated product of claim 6 wherein monomer (D) is selected from isophthalic acid, terephthalic acid, isophthalic acid (C<sub>1</sub>-C<sub>3</sub>) alkyl ester, terephthalic acid (C<sub>1</sub>-C<sub>3</sub>) alkyl ester, bis(2-hydroxyethyl)terephthalate, bis(2-hydroxyethyl)isophthalate, hydrocarbyl substituted derivatives thereof and mixtures thereof.

25

30. (New): The laminated product of claim 6 wherein the polymeric article comprises a bottle.

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31. (New): The laminated product of claim 6 wherein the polymeric article comprises a tray.

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32. (New): The laminated product of claim 6 wherin the paper article comprises a gable top carton.

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33. (New): The laminated product of claim 6 wherin the metal article comprises a can.